UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,633	01/14/2002	Alexei Gorokhov	NL 010037	4799

24737	7590	12/13/2005

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EXAMINER
FILE, ERIN M

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Advisory Action *Before the Filing of an Appeal Brief*	10/046,633	GOROKHOV ET AL.
	Examiner	Art Unit	
	Erin M. File	2634	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED <u>29 November 2005</u> FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☐ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

    a) ☐ The period for reply expires _____ months from the mailing date of the final rejection.

    b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

    Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

<u>NOTICE OF APPEAL</u>

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

<u>AMENDMENTS</u>

3. ☒ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will <u>not</u> be entered because

    (a) ☒ They raise new issues that would require further consideration and/or search (see NOTE below);

    (b) ☐ They raise the issue of new matter (see NOTE below);

    (c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or

    (d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

        NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).

5. ☐ Applicant's reply has overcome the following rejection(s): _____.

6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).

7. ☒ For purposes of appeal, the proposed amendment(s): a) ☒ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

    The status of the claim(s) is (or will be) as follows:

    Claim(s) allowed: _____.

    Claim(s) objected to: *4-7 and 26-29*.

    Claim(s) rejected: *1,2,8,9,11,15,17,18,20,21,23,24 and 1214*.

    Claim(s) withdrawn from consideration: *3,10,13,16,19,22 and 25*.

<u>AFFIDAVIT OR OTHER EVIDENCE</u>

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will <u>not</u> be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).

9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will <u>not</u> be entered because the affidavit or other evidence failed to overcome <u>all</u> rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).

10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

<u>REQUEST FOR RECONSIDERATION/OTHER</u>

11. ☐ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: _____.

12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08 or PTO-1449) Paper No(s). _____.

13. ☐ Other: _____.

ADVISORY ACTION

1.   The applicant contends that the combination of references Brink and Alamouti

does not anticipate the claimed invention because Amamouti does not teach the

intended use of the constellation diagrams and therefore does not meet the limitations

of the Claim. The anticipation of the Claims is made by the meeting of all of the

limitations in the Brink reference, except the limitation specific the configuration of the

signal constellation. A specific signal constellation does not have to be defined in the

same manner as the applicant in order to meet the limitations as claimed by the

applicant.

2.   The applicant further contends in his remarks that the calculation determining

Alamouti's referenced constellation meets the limitation $D_a > D_f$, with D_a the minimum

Euclidean distance between signal points whose corresponding labels differ by one

positin and D_f the minimum distance between all pairs of signal points is not shown. A

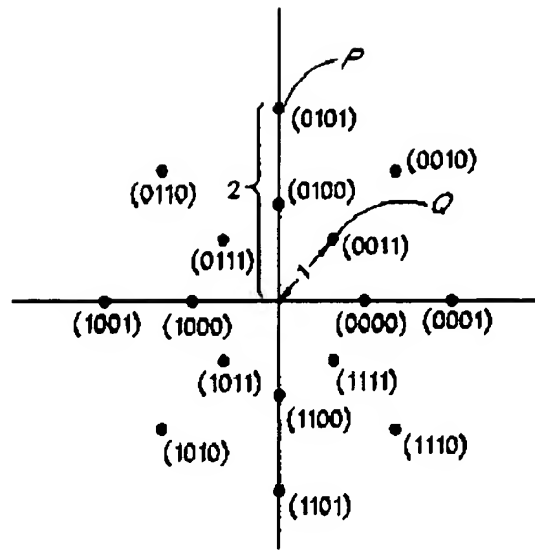thorough explanation for these calculations follows:

figure 1B from Alamouti reference

The minimum Euclidean distance between all pairs of signals whose corresponding labels differ in a single position. The following is a list of all adjacent points which vary in one position, it is assume that non adjacent points which vary by one position will have a greater distance and therefore cannot be the minimum distance:

Constellation Point 1	Constelllation Point 2	Distance
0010	0011	1
0110	0111	1
1001	1000	1
0100	0101	1
1011	1010	1
0000	0001	1
1111	1110	1
0010	0011	1
1100	1101	1

Visual inspection of above reference figure 1B shows that the radius from origin to inner

circle is 1 and the radius from origin to outer circle is 2, therefore the distance between

two points, one on the outer circle and one on the inner circle, if those points exists on

the same radial line is 1. All of the points listed above meet this criteria and the

minimum distance D_a is 1.

The minimum Euclidean distance between all signal points, D_f, is the minimum distance

between any two signal points in the constellation. To prove that $D_a > D_f$ it is only

necessary to prove that any two points have a distance (D_f) that is less than D_a.

Examine points (0011) and (0000), diagram of these points in the constellation digram is

shown here for clarity.
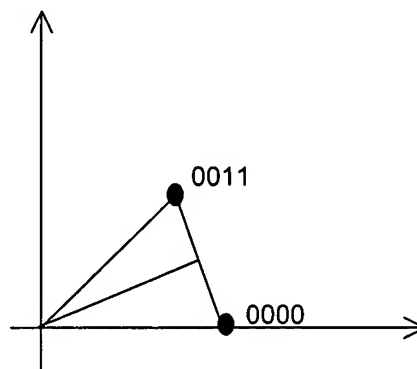
Reproduction of two points in figure 1B

The distance between origin (hereafter referred to as O) and 0011 is equal to 1, as is

the distance between the origin and 0000. The angle between (O, 0011) and (O,0000)

equals 45 degrees. To find the distance between (0011) and (0000), a line is drawn

from the origin to the midpoint of the line connecting two said points. Then using basic

geometry, it can be determined sin (22.5) = x/1, we get x=0.383, and 2x, the distance

between (0011) and (0000) is 0.765, which is less than 1.

3.   The limitation introduced into Claim 1, "the average Hamming distance (H1)

between all pairs of labels corresponding to neighboring signal points has a

substantially minimum value" was rejected as vague and indefinite under 35 USC § 112

in the office action dated 04012005:

> **Claims 3, 10, 13, 16, 19, 22, 25**, include the limitation "H_1 has a substantially
> minimum value" where H_1 is the average hamming distance between all pairs.
> There is an absolute maximum value of H_1, and therefore the meaning of
> substantially maximum is unclear and therefore rendered vague and indefinite.

4.   The limitations removed from Claims 4-7 and 26-29 change the scope of the

claim and requires further search.

5.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Erin M. File whose telephone number is (571)272-6040.

The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Stephen Chin can be reached on (571)272-3056. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Erin M. File

12/9/2005

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